

What is claimed is:

1. A power supply for an electronic equipment, comprising:
  - a power key which outputs a key-off signal in response to a manipulation of a user;
  - a power switch;
  - a first rectifying part which rectifies an alternating voltage and outputs a first DC voltage;
  - a transformer having a first winding having a first end connected to the first DC voltage, and a second winding magnetically coupled with the first winding;
  - a first switching part connected to a second end of the first winding and which switches on/off a current supply to the first winding;
  - a second rectifying part which rectifies a voltage induced in the second winding and outputs a second DC voltage;
  - a pulse width modulation part which controls an on/off state of the first switching part;
  - and
  - a power supply control device, comprising:
    - a key-off device which:
      - detects whether the key-off signal is output for a predetermined time, and
      - outputs a power-off signal to control the pulse width modulation part to switch off the first switching part in response to detecting that the key off signal is output for the predetermined time, and
    - a power supply control part which outputs a power-on signal to control the pulse width modulation part to switch on/off the first switching part in response to one of an externally supplied power-on signal and an on/off operation of the power switch.
2. The power supply of claim 1, wherein the key-off device comprises:
  - a comparator which compares the key-off signal with an input reference voltage and outputs a high level signal if the key-off signal is less than the input reference voltage for the predetermined period of time; and
  - an OR gate which outputs the power-off signal in response to the high level signal at a first input of the OR gate or in response to an externally supplied power-off signal at a second input of the OR gate.
3. The power supply of claim 1, wherein:
  - the externally supplied power-on signal is provided from a host computer through a USB interface part;

the power supply control device further comprises:

a second switching part which switches power from a power supply terminal of the USB interface part in response to the one of the externally supplied power-on signal and the on/off operation of the power switch, and

a first light emitting element which emits light in response to the power switched by the second switching part; and

the power supply further comprises a photo-transistor which turns on to supply a signal to the pulse width modulation part to control the pulse width modulation part to switch on/off the first switching part in response to the light emitted by the first light emitting element.

4. The power supply of claim 3, further comprising:

a second light emitting element serially connected with the photo-transistor and the alternating voltage input to the first rectifying part, and which emits light in response to the photo-transistor being turned on; and

the power key device further comprises a power sensing part disposed to the emitted light of the second light emitting element, for sensing the on/off state of the power switch.

5. The power supply of claim 3, further comprising:

an auxiliary power supply, disposed on a voltage supply path from the power supply terminal of the USB interface part to the second switching part, which supplies a voltage to the second switching part.

6. A control device for an electronic equipment having a power key, which outputs a key-off signal in response to a manipulation of a user, a USB interface which communicates with a host computer, and a switching mode power supply (SMPS), the control device comprising:

a power switch;

a key-off device which outputs a power-off signal to turn off the SMPS in response to detecting that the key-off signal is provided for a predetermined time; and

a power supply control part which outputs a power-on signal to turn on the SMPS in response to either one of a power on signal supplied by the host computer through the USB interface and an operation of the power switch.

7. The control device of claim 6, wherein the key-off device comprises:  
a comparator having first input connected to a voltage reference and a second input;  
and  
an RC network which controls an application of the key-off signal to the second input  
of the comparator in accordance with a time constant determined by the RC network to delay  
the power-off signal until the key-off signal has been applied for the predetermined time.

8. The control device of claim 7, wherein:  
the SMPS comprises:  
a first photo-transistor which conducts in response to first emitted light, to turn  
off the SMPS,  
a second photo-transistor which conducts in response to second emitted light,  
to turn on the SMPS, and  
a first light emitter which emits the first emitted light in response to the delayed  
power-off signal; and  
the power supply control part comprises a second light emitter which outputs the  
power-on signal as the second emitted light.

9. The control device of claim 7, wherein:  
the SMPS comprises:  
a first photo-transistor which conducts in response to first emitted light, to turn  
off the SMPS,  
a second photo-transistor which conducts in response to second emitted light,  
to turn on the SMPS,  
a first light emitter which emits third emitted light in response to the conduction  
of the second photo-transistor, and  
a second light emitter which emits the first emitted light in response to the  
delayed power-off signal;  
the power supply control part comprises a third light emitter which outputs the  
power-on signal as the second emitted light; and  
the key-off device further comprises a third photo-transistor which generates a signal  
equivalent to the power-key signal;  
wherein:  
where the second emitted light is emitted for less than the predetermined time,  
the power supply turns on, and

where the second emitted light is emitted for greater than or equal the predetermined time, the power supply turns off in response to the equivalent power-key signal.

10. A control system for a switching mode power supply (SMPS) for an electronic equipment, comprising:

- a power key, which outputs a key-off signal in response to a manipulation of a user,

- a power switch having an on state and an off state;

- a first photo-transistor which conducts in response to first emitted light, to turn off the SMPS,

- a second photo-transistor which conducts in response to second emitted light, to turn on the SMPS,

- a first light emitter which emits third emitted light in response to the conduction of the second photo-transistor;

- a second light emitter which emits the first emitted light in response to the key-off signal being output for at least a predetermined time;

- a third light emitter which outputs the second emitted light in response to the on state of the power switch; and

- a third photo-transistor which generates a signal equivalent to the key-off signal in response to the third emitted light, wherein:

- where the second emitted light is emitted for less than the predetermined time, the SMPS turns on, and where the second emitted light is emitted for at least the predetermined time, the SMPS turns off in response to the equivalent power-key signal.